

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2021/0098921 A1 Mahmoud et al.

Apr. 1, 2021 (43) **Pub. Date:**

(54) LOW-IMPEDANCE, LOW-HARMONIC SPRING CLIPS

(71) Applicant: Apple Inc., Cupertino, CA (US)

(72) Inventors: Mahmoud N. Mahmoud, Livermore, CA (US); Cheung-Wei Lam, San Jose, CA (US); Vaneet Pathak, Los Altos, CA (US); Ali Foudazi, Sunnyvale, CA

Assignee: Apple Inc., Cupertino, CA (US)

(21) Appl. No.: 17/030,932

(22) Filed: Sep. 24, 2020

Related U.S. Application Data

(60) Provisional application No. 62/906,574, filed on Sep. 26, 2019.

Publication Classification

(51) Int. Cl. H01R 13/24 (2006.01)H01Q 1/52 (2006.01)H01R 13/426 (2006.01)H01R 24/78 (2006.01)

(52) U.S. Cl. CPC H01R 13/2421 (2013.01); H01R 24/78 (2013.01); H01R 13/426 (2013.01); H01Q 1/52 (2013.01)

(57) ABSTRACT

Spring clips that provide a reliable, low-impedance, lowharmonic path between various conductive enclosure components of electronic devices. These spring clips can include a low-impedance connection on each of two ends, where each end physically and electrically connects to an enclosure component of an electronic device. This can reduce an impedance between enclosure components and reduce the amplitude and harmonics of signals coupled onto them from a nearby antenna or other waveguide.

